

# 3.0 Performance-Based Plan Approach

## 3.1 Performance-Based Planning

Performance-based planning is an approach that uses system information to make policy and investment decisions to achieve performance goals. Organizations, particularly in the private sector, have used this approach for years, but it has become more widespread among transportation agencies and the public sector over the last few decades. Agencies and organizations implement performance-based planning in different ways, but overall the literature has coalesced around six key components of performance-based planning at transportation agencies (Figure 3.1). Performance-based planning is considered best practice in developing regional transportation plans, and is now codified into law through the MAP-21 Federal transportation legislation. USDOT's final rulemaking for the performance measures and metropolitan planning stemming from MAP-21 are still pending and the MPO will work with its Federal, State, and transit partners to update the Livability 2040 RTP as necessary.

Figure 3.1 Steps of a Performance-Based Planning Process



Source: FHWA, Performance-Based Planning and Programming Guidebook, September 2013.

**Goals and objectives.** Goals and objectives describe the strategic direction of an agency and a region. These generally stay stable over time, and are only revisited as agency priorities change. Most successful performance-based planning programs start with a small number of goals (broad statement about the end result an agency wants to achieve) and objectives (break-down goals into attainable components and stated in measurable terms) tied to a discrete set of performance measures. MAP-21 delineates national goals, but a region can include additional goals specific to itself. In the development of Livability 2040, goals and objectives were developed based on public and stakeholder outreach, as discussed in Section 2.0, vetted through the RTPAC, and approved by the ETC and TPB.

Linking **performance measures** to an agency's priorities or strategic direction and the availability of high-quality data is critical to successful measurement. Measures track the accomplishment of goals and objectives, and evolve over time as data sources, tools, and the state-of-the-practice advance. Measures can be at the project or plan level. Criteria for selecting good measures include ability to calculate, policy sensitivity, and understandability. Performance measures were developed for Livability 2040 by adhering to these best practices and linking back to the goals and objectives.

A continuous cycle of **target setting, resource allocation, and performance monitoring** links goals and measures to specific policy and investment decisions. This process includes evaluating alternative policies, programs, and projects to assess the likely performance impacts of different strategies and funding scenarios. How much money should an agency spend on various programs or on specific projects? How do these decisions impact current or future performance? Section 7 describes the evaluation methodology for resource allocation utilized for Livability 2040.

**Tracking actual performance results**, comparing actual results to expectations to help evaluate the effectiveness of programs and projects, and providing performance information to internal and external audiences are critical to maintain accountability and drive better decision-making. As a result of MAP-21, Federal requirements will be set in the future for performance reporting for the MPO and the States.

All elements of the process should be supported by **quality data** – bad data will lead to badly informed decisions and can be worse than having no data, since it may lead internal and external audiences to question the value of performance-based planning. In the Memphis MPO region, these data (and tools) include recent travel surveys, the travel demand model, and State and national level datasets on freight movement and road and bridge condition, for example.

## 3.2 Livability 2040 Performance Framework

Livability 2040 goals and objectives were developed based on extensive outreach conducted in the fall of 2014 (documented in Section 2.0), as well as best practices from around the country and Federal guidance.

Much of the public input received during initial outreach efforts was very consistent in relation to investment goals for the Memphis MPO region. Several key themes were repeated and focused around investments to improve the condition, quality and efficiency of the EXISTING transportation system. This input was consistent regardless of the jurisdiction or demographic providing feedback. These themes orient very much towards the *user experience* of the current transportation system and were almost universally voiced through the outreach efforts. While these themes were largely consistent, initial input on how to address these challenges varied. A spectrum of potential investment strategies was discussed, either through public outreach or through the outcomes and recommendations of key studies. Strategies were often discussed from a perspective of advancing either regional mobility or local livability considerations, but not both. A general summary of this input can be categorized into mobility and livability issues.

From a mobility perspective, traffic flow to, from, and within the region is essential if the Memphis MPO region is to maintain a competitive economic advantage, in particular as it relates to the movement of freight and goods. This

implies the need for major road and intermodal improvements. At the same time, jobs are decentralizing to areas where non-motorized transportation is very difficult. Improvements are needed to ensure the multimodal mobility of the region's workforce to avoid negative economic ramifications, and to avoid exacerbating a fast-growing economic gap.

From a livability perspective, though the region depends heavily on the freight sector to provide employment opportunities and for economic success, it is crucial to achieve compatibility between those activities and neighborhood quality of life. More efficient and more rapid freight movement generally means faster travel times but must be balanced with non-motorized transportation in a context sensitive manner, as residents have indicated a need for these additional transportation options. This is consistent with the region's definition of livability as "supporting and enhancing communities with more affordable and reliable transportation choices that provide access to employment, education, and other basic needs."

*Understanding the existing (and desired) form and function of a roadway will be critical to advancing both mobility and livability objectives.*

This feedback gathered through the public outreach activities (documented in Section 2.0) was used to shape the goals and objectives for Livability 2040 and served as the foundation for the performance-based planning approach. The performance framework developed for the Livability 2040 RTP was specifically designed to support an investment decision-making process that effectively and fairly navigates these types of regional mobility and local livability tradeoffs, while being compliant with proposed MAP-21 Federal rules, thereby supporting the national transportation system as well. To operationalize this approach within the performance framework, a set of five investment context types was defined to infuse land use context and a sense of investment "scale" into the plan development process. This scale supports livability considerations at the community level without impeding mobility considerations at regional level. It helps support more targeted investment decisions that better match a broad range of transportation solutions to a broad range of transportation needs.

Based on input from the RTPAC, the following investment contexts were applied within the performance framework to help balance consideration of regional and local needs. Potential projects were assigned to a context based on their function within the region and then evaluated by criteria tailored to reflect the appropriate balance between livability and mobility:

1. **Interregional** – Investments aligned with big-ticket capital or maintenance needs to ensure the region is well connected within the state and the nation to maintain regional economic competitiveness. Investments support interstate mobility, intermodal connections, and freight/logistics hubs.
2. **Regional Centers** – Investments support strategic connections between regional activity and economic centers through improved mobility and travel time reliability on corridor connections to key centers and last-mile connectivity to ensure effective access to a regional system.



**3. Town Centers** – Investments support economically viable and thriving community centers; specifically, redevelopment opportunities, multimodal connections and access to a mix of business, retail and residential uses



**4. Neighborhood Communities** – Investments support healthy, thriving communities through improved system operations and multimodal access to community resources within primarily residential areas.



**5. Undeveloped** – Investment strategies that protect and preserve undeveloped or environmentally sensitive areas.



A set of systems and project-level performance measures was established across a broad set of performance categories aligning with Livability 2040 goals and objectives including: system preservation, congestion reduction, economic growth/freight movement, environmental sustainability, reliability, and safety and security (**Table 3.1**). These categories also align with national transportation goals established in MAP-21, with input provided by the public, and with direction provided by the RTPAC. Detail on performance evaluation criteria and the project evaluation process applied for Livability 2040 is provided in Section 7.0. The Memphis MPO continues to await further Federal guidance on target setting for corresponding performance measures; however, target-setting for bridge and pavement condition, under the first goal in Table 3.1, is described in Section 7.0.

The Livability 2040 Performance Framework, inclusive of goals/objectives and performance metrics for systems and project level evaluation, was reviewed by the RTPAC in November 2014, with modifications before moving forward to the Memphis MPO's ETC. The Goals and Objectives were approved by the ETC on November 6, 2014, and were approved by the Memphis MPO's Transportation Policy Board (TPB) on November 20, 2014.

**Table 3.1 Livability 2040 Goals, Objectives, and Performance Measures**

| MAP-21 National Goal     | Direction 2040 Planning Emphasis Area | Livability 2040 Planning Emphasis Area | Livability 2040 Goal   | Livability 2040 Objectives <sup>1</sup>   | System-Level Performance Measures  | Project Level Performance Measures   |
|--------------------------|---------------------------------------|--|--|---|--|--|
| Infrastructure Condition | Maintenance                           | Condition                              | <b>Goal 1.</b> Maintain existing transportation assets and infrastructure                  | <p><b>Objective 1.1</b> Maintain existing assets as a priority, before system expansion is considered</p> <p><b>Objective 1.2</b> Prioritize strategies to better manage travel demand on existing infrastructure before adding new infrastructure</p> <p><b>Objective 1.3</b> Promote construction/maintenance techniques, materials and practices that minimize maintenance needs over the plan horizon</p> | <p>Pavement: Percent Lane Miles in Good/Fair Condition, National Highway System, NHS<sup>2</sup></p> <p>Bridge: Percent Deck Area Non-Structurally Deficient<sup>2</sup></p> | NA – Ensuring the adequate maintenance of existing infrastructure as a priority will be addressed through a network level analysis of pavement and bridge maintenance needs over the plan horizon. This analysis will define a system maintenance funding level that will be set aside to support maintenance needs as they are identified and prioritized by local jurisdictions and the TDOT/MDOT. |
| Safety                   | Safety                                | Quality                                | <b>Goal 2.</b> Increase the safety and security of the transportation system for all users | <p><b>Objective 2.1</b> Support projects that address an existing, identified safety or security need</p> <p><b>Objective 2.2</b> Support projects, programs and policies that advance safe and secure travel over the plan horizon</p> <p><b>Objective 2.3</b> Initiate crash data management system to improve data collection, safety analysis, and performance reporting</p>                              | Reduction in Number and Rate of Fatal and Serious Crashes <sup>2</sup>   | Project is on corridor of safety concern and includes countermeasure(s) to address RTP Safety Emphasis Area<br><br>Project Addresses Security or Emergency Response Need   |

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|--|---------------------------------------|--|---|---|---|--|
| Environmental Sustainability           | Environment                           |  | <b>Goal 3.</b><br>Minimize adverse impacts of transportation investment on the (social, natural, historic) environment and improve public health. | <b>Objective 3.1</b> Provide multimodal, active transportation options that reduce vehicle miles travelled and air pollution and improve public health<br><b>Objective 3.2</b> Preserve and protect natural resources<br><b>Objective 3.3</b> Support integrated and expanded greenway/multiuse plans   | VMT/Capita<br>Air Pollutant Emissions <sup>2</sup><br>Land Preserved  | VMT reduction<br>Project requires minimal right of way or land acquisition   |
|  | Land Use                              |  | <b>Goal 4.</b><br>Advance corridor and community redevelopment opportunities to improve economic development and quality of life                  | <b>Objective 4.1</b> Encourage context sensitive solutions derived from integrated transportation/land use planning efforts<br><b>Objective 4.2</b> Support complete streets implementation (on regional livability corridors)<br><b>Objective 4.3</b> Encourage access management planning and design to maintain minimum level of service (on regional mobility corridors)<br><b>Objective 4.4</b> Identify and mitigate freight/residential community conflict | Number of projects identified through integrated planning effort (transportation/land use/economic development) | Project is in keeping with community priorities<br>Project supports community or corridor redevelopment                                    |
| Economic Vitality/<br>Freight Movement | Economic Vitality                     | Efficiency                             | <b>Goal 5.</b><br>Ensure the region is well positioned to remain a leader in global logistics and freight movement                                | <b>Objective 5.1</b> Reduce truck delay on critical freight corridors and within key freight hubs<br><b>Objective 5.2</b> Reduce intermodal conflict and delay<br><b>Objective 5.3</b> Advance an Airport/Aerotropolis Traffic Management Authority (TMA)   | Annual Truck Hours Delay (Interstate System) <sup>2</sup>   | Truck Hours Delay Reduced<br><ul style="list-style-type: none"> <li>•Freight Corridor</li> <li>•Freight hub/intermodal facility</li> </ul> |

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|--|---------------------------------------|--|---|--|---|--|
|  | Mobility/ Accessibility               |  | <b>Goal 6.</b><br>Improve multimodal access to community and employment resources | <b>Objective 6.1</b> Improve bicycle and pedestrian access to educational, health, and recreational opportunities<br><b>Objective 6.2</b> Expand transit service to unserved regional employment markets<br><b>Objective 6.3</b> Focus complete streets upgrades in underserved regional markets with latent demand<br><b>Objective 6.4</b> Expand rural human services transportation services into areas not currently served<br><b>Objective 6.5</b> Improve system access for all system users<br><b>Objective 6.6</b> Advance Travel Demand Management (TDM) strategies so support last mile connections for key employment origins and destination | Bicycle and Pedestrian Mileage (New Infrastructure, Total System)<br><br>Population, Employment Served by Transit<br><br>Mode Split | Project fills gap in, or expands, multimodal system<br><br>• Access to community resources<br><br>• Addresses last mile connectivity for employment origin/destination<br>Project enhances transit ridership |
| Congestion Reduction<br><br>System Reliability | Congestion                            |  | <b>Goal 7.</b><br>Reduce travel delay for people and goods                        | <b>Objective 7.1</b> Address critical highway bottlenecks as a priority<br><b>Objective 7.2</b> Focus capacity investment on corridor connections to regional employment centers<br><b>Objective 7.3</b> Improve system operations through technology applications   | Annual Congestion Costs, Trucks/Auto<br><br>Annual Vehicle Hours Delay National Highway System (NHS) <sup>2</sup>                   | Vehicles Hours Delay Reduced<br><br>• Corridor connection to employment center   |
| Project Delivery                               | Collaboration Funding                 | Addressed via agency business practice |   |  |   |  |

<sup>1</sup> Objectives and corresponding performance measures may support more than one goal area.

<sup>2</sup> Proposed/expected MAP-21 systems level performance measure.